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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,650	04/05/2002	Paul Christou	0380-P02714USO	7099

110 7590 09/22/2004

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1601 MARKET STREET
SUITE 2400
PHILADELPHIA, PA 19103-2307

EXAMINER	
KUBELIK, ANNE R	
ART UNIT	**PAPER NUMBER**
1638	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	09/980,650	CHRISTOU ET AL.	
	Examiner	Art Unit	
	Anne R. Kubelik	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7-32 and 42-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1. The claims 1-3, 5, 7-32 and 42-47 are pending. The sequence elected in response filed 1 October 2003 is SEQ ID NO:6.

2. In the response to the restriction being made final, Applicant states that there was an election of species (response pg 9). This is not the case. The requirement for election of a single sequence was also a restriction. Nucleotide sequences encoding different proteins are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute **independent and distinct** inventions within the meaning of 35 U.S.C. 121. Each sequence requires an independent search of the sequence databases. Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq (see MPEP 803.04 and 2434).

3. Applicant is reminded that they must include cancel the nonelected sequences or take other appropriate action (37 CFR 1.144). See MPEP § 821.01.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. The objections to claims 17 and 18 objected to under 37 CFR 1.75(c) as being in improper form because of being improper multiple dependent claims are withdrawn in light of Applicant's amendment of the claims.

Claim Objections

6. Claims 16, 20, 24-25, 26 and 32 are objected to because of the following informalities: The objection is repeated for the reasons of record as set forth in the Office action mailed 18 December 2003, as applied to claims 2-16, 19-20, 23-26, 29-30, 32, 42 and 45-47. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

In claims 24-25 and 30, there should be comma before "wherein".

There is an improper article before "nucleic" in claim 16, line 2, claim 26, lines 4-5, and claim 32, lines 3-4.

In claim 20, line 2, "which" should be replaced with --, wherein the--.

In claim 32, line 4, "the" should be replaced with --a--.

Applicant urges that the objections have been overcome by amendment (response pg 10).

This is not found persuasive because no amendment was made to address these objections.

Claim Rejections - 35 USC § 112

7. Claims 1-3, 5, 7-10, 12-32 and 43-47 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for nucleic acids encoding a fusion protein comprising a cry1Ab or cry1Ac toxin domain fused to the ricin binding domain, vectors, host cells, and plants comprising them, and a method of using them to affect the toxicity of a plant to a pest, does not reasonably provide enablement for nucleic acids encoding a fusion protein comprising any toxin domain fused to any heterologous binding domain that binds to cell membranes without disrupting it, vectors, host cells, and plants comprising them, and a method of using them to affect the toxicity of a plant to a pest. The specification does not enable any

person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The rejection is repeated for the reasons of record as set forth in the Office action mailed 18 December 2003, as applied to claims 1-16, 19-32 and 42-47. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

The claims are broadly drawn to nucleic acids encoding a fusion protein comprising any toxin domain fused to a binding domain derived from any lectin, vectors, host cells, and plants comprising them, and a method of using them to affect the toxicity of a plant to a pest.

The instant specification, however, only provides guidance for site directed mutagenesis of the ricin toxin B chain gene (example 1), cloning cry1Ab and cry1Ac genes into baculovirus vectors and fusion to one of three terminally deleted ricin toxin B chain genes (example 2), production of insect cells expressing the fusion protein (example 3), in vitro toxicity assays (example 4), transformation of the fusion genes into rice (example 5), assay of the plants for insecticidal activity (example 6), and assay of the ability of a Bt-lectin fusion protein to bind to insect midgets (example 7).

The instant specification fails to provide guidance for the full scope of nucleic acids encoding a fusion protein comprising any toxin domain fused to a binding domain derived from any lectin, vectors, host cells, and plants comprising them, and a method of using them to affect the toxicity of a plant to a pest.

The instant specification also fails to provide guidance for nucleic acids with 90% homology to SEQ ID NO:6 or for binding domain derived from lectins.

Making modifications in proteins by making "conservative" substitutions (*e.g.*, substituting one polar amino acid for another, or one acidic one for another) does not produce predictable results. Lazar et al (1988, Mol. Cell. Biol. 8:1247-1252) showed that the "conservative" substitution of glutamic acid for aspartic acid at position 47 reduced biological function of transforming growth factor alpha while "nonconservative" substitutions with alanine or asparagine had no effect (abstract). Similarly, Hill et al (1998, Biochem. Biophys. Res. Comm. 244:573-577) teach that when three histidines that are maintained in ADP-glucose pyrophosphorylase across several species are substituted with the "nonconservative" amino acid glutamine, there is little effect on enzyme activity, while the substitution of one of those histidines with the "conservative" amino acid arginine drastically reduced enzyme activity (see Table 1).

The claim requires that the binding domain bind non-specifically to a cell membrane. The specification defines non-specific binding as binding not requiring a specific receptor (pg 6, lines 33-34). However, the specification teaches that lectins bind tightly to carbohydrates and that bind is specific to different sugars ((paragraph spanning pg 70-8). Furthermore, Youle et al (1979, Proc. Natl. Acad. Sci 76:5559-5562) teaches that ricin binds to receptors (abstract). Thus, the specification is contradictory as to what binding domains can be used in the invention.

As the specification does not describe the transformation of any plant with a nucleic acids encoding a fusion protein comprising any toxin domain fused to any heterologous binding domain that binds to cell membranes without disrupting it, undue trial and error experimentation would be required to screen through the myriad of nucleic acids encompassed by the claims and

plants transformed therewith, to identify those with increased pest toxicity, if such plants are even obtainable.

Given the claim breath, unpredictability in the art, undue experimentation, and lack of guidance in the specification as discussed above, the instant invention is not enabled throughout the full scope of the claims.

Applicant urges that no reasoning is provided to back up the rejection (response pg 14).

This is not found persuasive because reasons is provided as presented above.

Applicant urges that they have shown a principle of action, and that a lectin can be used to enhance the binding of a toxin domain to cells, thereby increasing its effectiveness as a toxin; one of skill in the art knows and the specification states that other pesticidal toxins can be used in the same way - no undue burden would be required to use them (response pg 15-16).

This is not found persuasive because the specification fails to provide guidance as to which toxins and which lectins can be used in the full scope of the claims.

See *Genentech, Inc. v. Novo Nordisk, A/S*, 42 USPQ2d 1001, 1005 (Fed. Cir. 1997), which teaches that disclosure of a "mere germ of an idea does not constitute [an] enabling disclosure", and that "the specification, not the knowledge of one skilled in the art" must supply the enabling aspects of the invention.

Applicant urges that RTB domains are successfully used in fusion proteins with two different Bt toxins and that other lectins can be substituted (response pg 16-18).

This is not found persuasive because Applicant has used only two of the many, many millions of lectins and toxins. Applicant has not taught how to make "derivatives" of the lectins

or the toxins, which would include any protein, as any protein would be considered a "derivative" of any other protein".

Applicant urges that that it is well known in the art that nucleic acid and protein sequences can be varied while retaining function and methods of making these changes are routine; amino acid changes in many locations in a protein do not affect function (response pg 18-19).

This is not found persuasive because the specification must provide guidance as to which substitutions can be made in the proteins used in the claims. Lazar et al and Hill et al teach that making substitutions teach that amino acid substitutions is unpredictable.

Applicant urges that claims to variant sequence are allowed in other applications (response pg 18).

This is not found persuasive. Each application stands on its own merits.

Applicant urges that they have shown that the toxic activity of the fusions is maintained even when part of the RTB domain is deleted (response pg 19).

This is not found persuasive because the ricin deletions do not teach binding domains derived from lectins within the full scope of the claims.

Applicant urges that Lazar et al and Hill et al are exceptions to the general rule that changes can be made without substantially affecting protein activity, and that there is no undue burden in generating functional variants (response pg 19-20).

This is not found persuasive because Applicant has provided no evidence that Lazar et al and Hill et al are exceptions to a general rule. Additionally, given that 19^{100} single amino acid substitutions can be made in protein that is only 100 amino acids long, without guidance as to

which substitutions can be made in a given protein, undue experimentation would be required to made and screen the substitutions using trail and error experimentation.

Applicant urges that there would not be undue burden for the skilled person to introduce the claimed constructs in host cells, or plants (response pg 20).

This is not found persuasive. The rejection is not over plant transformation per se, but because of the lack of guidance for the claimed pesticidal fusions.

8. Claims 1-3, 5, 7-10, 12-32 and 43-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office action mailed 18 December 2003, as applied to claims 1-16, 19-32 and 42-47. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

The claims are broadly drawn to a multitude of nucleic acids encoding a fusion protein comprising any toxin domain fused to a binding domain derived from any lectin. In contrast, the specification only describes nucleic acids encoding a fusion protein comprising a cry1Ab or cry1Ac toxin domain fused to the ricin-binding domain. Applicant does not describe other DNA molecules encompassed by the claims, and the structural features that distinguish all such nucleic acids from other nucleic acids are not provided.

Hence, Applicant has not, in fact, described DNA molecules that encode fusion proteins comprising any toxin domain fused to a binding domain derived from any lectin within the full

scope of the claims, and the specification fails to provide an adequate written description of the claimed invention.

Therefore, given the lack of written description in the specification with regard to the structural and physical characteristics of the claimed compositions, it is not clear that Applicant was in possession of the genus claimed at the time this application was filed.

Applicant urges that one of skill in the art could generate constructs comprising any toxin and any lectin (response pg 24).

This is not found persuasive because the art describes a lectin as any non-enzyme or non-antibody protein that binds carbohydrate (Barondes, 1988, TIBS 13:480-482; see pg 482, paragraph spanning columns 1-2). The structural features of carbohydrate binding proteins, and the nucleic acid that encode them, are not described within the full scope of the claims.

Applicant urges that the specification cannot describe every possible embodiment but it does describe a representative number of species to show Applicant was in possession of the claimed subject matter (response pg 24).

This is not found persuasive because the specification only describes a very narrow subset of the wide scope of the claimed toxins and lectins; it does not describe a representative number of species.

9. Claims 1-16, 19-32 and 42-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Dependent claims are included in all rejections. The rejection is repeated for the reasons of record as set forth in the Office action mailed 18

December 2003, as applied to claims 1-16, 19-32 and 42-47. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

Claim 1, lines 3-4, and claim13, line 4, are indefinite in their recitation of "non-specifically". It is unclear what it means for the binding domain to bind non-specifically.

Applicant urges that the specification defines non-specific binding as binding not requiring a specific receptor (response pg 26).

This is not found persuasive because the specification teaches that lectins bind tightly to carbohydrates and that they bind to some sugars and not others; those sugars would be receptors. Thus, it is unclear what non-specific binding is.

Claims 1-2, 13 are indefinite in their recitation of "derived". The extent to which the toxin domain differs from a Bt cry toxin is unclear.

Applicant urges that one of skill in the art would know what whether a protein is derived form a toxin or lectin (response pg 26-27).

This is not found persuasive because the extent to which they differ from a lectin or toxin is unclear. For example, would the binding domain derived from a lectin still be a lectin?

Claims 9-11 and 42 are indefinite in the recitation of "degeneratively equivalent thereto". It is unclear what this phrase means - does it encode the same protein, and if so which, of the numerous proteins that can be encoded by any segment of DNA, does it encode?

Applicant urges that it encodes the specified amino acid sequence (response pg 27).

This is not found persuasive because no amino acid sequence identifier is recited. The sequence identifiers are all nucleic sequences. These sequences can encode numerous potential proteins.

Claim 12 is indefinite in its recitation of "homology". What is means for a sequence to have 90% homology with another sequence is unclear. Dufresne et al (2004, Nature BioTechnol 22:231-232) teach that it is contradictory to associate a percentage with the qualitative concept of homology (pg 232, left column, paragraph 2).

Claim 13 is indefinite in its recitation of "combining". Are the two nucleic acids simply mixed together? That would not produce the nucleic acid of claim 1, which is drawn to a nucleic acid encoding a fusion protein. Steps or critical elements appear to be missing from the claim.

Applicant urges that one of skill in the art would know how to combine the specified nucleic acids to produce the claimed nucleic acid; recitation of steps is not required (response pg 27).

This is not found persuasive because recitation of steps or replacing of "combining" with --joining-- would be required, given the indefiniteness of the claim.

Claim 14 is indefinite in its recitation of "addition, insertion, ... the nucleic acid". The extent to which the sequence of toxin or binding domain differs from the original is unclear. It is also unclear which portion of the sequence is modified.

Applicant urges that claim 14 depends from claim 13, which ahs functional limitations; thus the sequence is not mutated to the extent it no longer has the recited function (response pg 27-28).

This is not found persuasive because the extent to which the sequence of toxin or binding domain differs from the original is unclear.

Claim 27 is indefinite in its recitation of "host cell ... said membrane". Is this host cell in addition to the plant cell transformed in claim 26 and from which the plant was regenerated?

Applicant did not address this rejection.

It is unclear in claim 28 if the selfed or hybrid progeny comprise the recombinant vector.

Applicant urges that the progeny are progeny off the plant of claim 28, and would thus have the nucleic acid (response pg 29).

This is not found persuasive because Mendel's law of segregation means that not all progeny of a transformed plant will have the nucleic acid with which the plant was transformed.

Claim Rejections - 35 USC § 102

10. Claims 1-3, 7-10, 12-16, 20-22 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Murphy (1997, US Patent 5,668,255) taken with the evidence of Uhr et al (1987, US Patent 4,664,911). The rejection is repeated for the reasons of record as set forth in the Office action mailed 18 December 2003, as applied to claims 1-4, 12-16, 20-22 and 43-44. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

Murphy teaches nucleic acids encoding fusion proteins between the cholera, shigella or ricin toxin A fragment, which is the enzymatically active portion of the toxin, and the diphtheria toxin B chain, which is the generalized cell-binding/translocation portion (column 9, line 22, to column 13, line 20). The toxin A fragments would be "derived" from a Bt CryIA(b) or (c) toxin and the nucleic acid would have 90% homology to SEQ ID NO:6. The diphtheria toxin B chain would be "derived" from the ricin toxin B chain, including RTB12, RTB2 and RTB3. Uhr et al teaches that the diphtheria toxin B chain is a lectin (column 3, lines 5-19).

Applicant urges that Murphy et al generally concerns fusions of a cell-binding portion, a membrane translation domain and a chemical; the cell binding domains are not lectins and do not bind nonspecifically because they bind to specific receptors (response pg 30-31).

This is not found persuasive because Uhr et al teaches that the diphtheria toxin B chain is a lectin. Additionally, as discussed above, ricin binds to specific receptors.

Applicant urges that Murphy et al deals exclusively with human health applications (response pg 31).

This is not found persuasive because humans would be considered pests; thus the proteins taught by Murphy are pesticidal fusion proteins.

Applicant urges that when Murphy talks about ricin, they talk about the A chain (response pg 32).

This is not found persuasive because the rejection was not that Murphy teaches the ricin B chain.

Applicant urges that the fragments used in Murphy are not derived from CryIA(b) or (c) or SEQ ID NO:6 (response pg 32).

This is not found persuasive because the extent to which a derived protein differs from the original is unclear. Any protein could be considered as derived from any other.

11. Claims 1-3, 7-10, 12-23, 2627, 31-32 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilcox et al (1994, US Patent 5,290,914) taken with the evidence of Crickmore et al (1998, Micro. Mole. Biol. Rev. 62:807-813) and Uhr et al (1987, US Patent 4,664,911). The rejection is repeated for the reasons of record as set forth in the Office action

mailed 18 December 2003, as applied to claims 1-4, 9, 12-16, 19-23, 26-27, 31-32 and 43-45. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

Wilcox et al teaches nucleic acids encoding pesticidal fusions between Bt HD-73 or HD-1 toxins and the diphtheria toxin B chain, host cells, plants and baculoviruses transformed with it and a method of using it to increase pest resistance in a plant (column 19, line 48, to column 26, line 49 and column 2, lines 24-25). The nucleic acid would have 90% homology to SEQ ID NO:6. The diphtheria toxin B chain would be "derived" from the ricin toxin B chain, including RTB12, RTB2 and RTB3.

Crickmore teaches that BT strain HD-1 encodes a CryIA(b) toxin and HD-73 encodes a CryIA(c) toxin (Table 1 and references 3 and 50). Uhr et al teaches that the diphtheria toxin B chain is a lectin (column 3, lines 5-19).

Applicant urges that in WIlcox, the Bt domain is used for binding (response pg 33).

This is not found persuasive because Wilcox also makes constructs in which the diphtheria B chain is used for binding (examples 1 and 2).

Applicant urges that Wilcox does not describe a fusion between a lectin and a toxin (response pg 33-34).

This is not found persuasive because the constructs in examples 1-2 do describe a fusion between a lectin and a toxin, and Uhr et al teaches that the diphtheria toxin B chain is a lectin.

Applicant urges that in example 3 the binding portion of DTPB is replaced (response pg 34).

This is not found persuasive because the constructs in examples 1 and 2 comprise Bt toxin fused to DTB.

Claim Rejections - 35 USC § 103

12. Claims 1-3, 5-23, 26-27, 31-32 and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilcox et al (1994, US Patent 5,290,914) in view of Horn et al (1996, US Patent 5,538,868). The rejection is repeated for the reasons of record as set forth in the Office action mailed 18 December 2003, as applied to claims 1-16, 19-23, 26-27, 31-32 and 42-45. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

The claims are drawn to a nucleic acid encoding a pesticidal fusion between a Bt toxin and the ricin B chain, host cells, plants and baculoviruses transformed with it and a method of using it to increase pest resistance in a plant.

The teachings of Wilcox et al are discussed above. Wilcox et al do not disclose a nucleic acid encoding a pesticidal fusion between a Bt toxins and the ricin B chain.

Horn et al disclose a nucleic acid encoding ricin B, which is the binding domain.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using a nucleic acid encoding a pesticidal fusion between a Bt toxin and the diphtheria toxin B chain to increase pest resistance in a plant, as taught by Wilcox et al, to substitute the diphtheria B chain with the ricin B chain described in Horn et al. One of ordinary skill in the art would have been motivated to do so because the suggestion of Wilcox et al to do so (column 3, lines 9-16).

Applicant urges that Horn et al fails to compensate for the deficiencies of Wilcox (response pg 35).

This is not found persuasive because of Wilcox et al do teach the bulk of the invention, as discussed above.

13. Claims 24-25, 28-30 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilcox et al in view of Horn et al as applied to claims 1-3, 5-23, 26-27, 31-32 and 42-45 above, and further in view of Gordon-Kamm et al (1990, Plant Cell 2:603-618). The rejection is repeated for the reasons of record as set forth in the Office action mailed 18 December 2003. Applicant's arguments filed 18 June 2004 have been fully considered but they are not persuasive.

The claims are drawn to a nucleic acid encoding a pesticidal fusion between a Bt toxin and the ricin B chain, host cells, maize plants and baculoviruses transformed with it and a method of using it to increase pest resistance in a maize plant.

The teachings of Wilcox et al in view of Horn et al are discussed above. Wilcox et al in view of Horn et al do not disclose maize plants transformed with the construct.

Gordon-Kamm et al teach transformation of maize and seeds produced from the transformed plants (pg 604-609).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using a nucleic acid encoding a pesticidal fusion between a Bt toxin and the diphtheria toxin B chain to increase pest resistance in a plant, as taught by Wilcox et al in view of Horn et al, to transform the nucleic acid into a maize plant, as described in Gordon-Kamm et al. One of ordinary skill in the art would have been motivated to do so because of the economic importance of maize.

Applicant urges that Gordon-Kamm et al fails to compensate for the deficiencies of Wilcox (response pg 35).

This is not found persuasive because of Wilcox et al do teach the bulk of the invention, as discussed above.

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

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Anne R. Kubelik, Ph.D.
September 16, 2004

ANNE KUBELIK
PATENT EXAMINER